Appendix

9. A tip having

a dissipative material for use in wire bonding machines for connecting leads on integrated circuit bonding pads, wherein

said dissipative material is a doped semiconductor which is titanium nitride carbide, has a resistance low enough to prevent a discharge of charge to a device being bonded and high enough to avoid current flow large enough to damage said device being bonded,

and is formed on a conducting core of

[A tip as in claim 8, wherein said conductor is] cobalt bonded tungsten carbide[; and

said doped semiconductor is titanium nitride carbide].

30. A method of manufacturing a dissipative bonding tip comprising:

forming a dissipative material having at least a doped semiconductor that is titanium nitride carbide, as a bonding tip that has a resistance low enough to prevent a discharge of charge to a device being bonded and high enough to avoid current flow large enough to damage said device being bonded,

wherein said step of forming includes forming said doped semiconductor on a conducting core of

[The method of claim 29, wherein said conductor is] cobalt bonded tungsten carbide[, and

said doped semiconductor is titanium nitride carbide].

33. The method of claim 19 wherein the step of forming comprises:

forming a solid structure; and

treating the solid structure by ion implantation [implementation], vapor deposition, chemical vapor deposition, physical deposition, electro-plating deposition, or neutron bombardment to produce a surface layer.

45. A method of using a bonding tip, comprising:

bonding a device using a bonding tip made with a dissipative material that is a doped semiconductor of titanium nitride carbide and has a resistance low enough to prevent a discharge of charge to said device and high enough to avoid current flow large enough to damage said device, wherein

said dissipative material is formed on a conducting core of

[The method of claim 44, wherein said conducting core is] cobalt bonded tungsten carbide[; and

said doped semiconductor is titanium nitride carbide.